

SHAHBAG

They say "History repeats itself" and this is what happening in Bangladesh on Feb 2013. Mass people fought the war in 1971 and now they are rising again to fight war criminals who betrayed the country. In "Shahbag" you can hear the voice of people wanting justice.



If you go to shahbag you can see many human chains. For this problem we imagine a straight line going through middle of shahbag. Each position of the line is marked from 1 to 20000.

People are forming human chains along the line. Initially every position is empty. When someone stands in i^{th} position he holds hand of people who are standing in his left and right (if there any) and join there group. If there are no people beside him, he forms a new group.

When a new people come your job is to mark his position and count currently how many groups are there in shahbag.

For example suppose:

1. a man came first and stood in position 2. Currently there are only 1 group.
2. then another man stood in position 4. Currently there are 2 groups.
3. another man stood in position 3. Now there are only 1 group.

And yes, people won't leave until they get justice, so no need to worry about that. mi

Input

There will be a single case. First line will contain an integer Q which denotes number of people. Next line will contain Q ($1 \leq Q \leq 20000$) integers p_i which denotes position of i -th people that joined the chain. Each p_i will be distinct and at most 20000.

Output

For each p_i print number of groups currently in shahbag. In last line print the string "Justice" with a

newline. Do not print any extra spaces.

Example

Sample Input:

```
6  
2 4 3 6 7 5
```

Sample output:

```
1  
2  
1  
2  
2  
1  
Justice
```

Note:

This problem is based on true event. You can find the details [here](#).

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